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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference				FOR FURTHER AC	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)						
				1 1 2 2 2 1 Class data (c	landa anth f	(mar)	Priority date (day/month/year)				
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AZUL IIZU											
Applicant Thomas (196) (196) (196) (196)											
RECKITT BENCKISER HEALTHCARE (UK) LIMITED et al											
This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.											
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2.	This REPORT consists of a total of 4 sheets, including this cover sheet.										
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	VII		Certain defects in the	international application							
	VIII		Certain observations	on the International appl	ication						
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/GB 03/03040

	Dania	-646-	
1.	Basis	OI HIE	tehoir

1. With regard to the **elements** of the international application (Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)):

	Desc	cription, Pages								
	8-22		~	as originally filed						
	1-7		receive	ed on 21.07.2004 with letter of 21.07.2004						
	Clai	ms, Numbers								
	1-15		receive	received on 21.07.2004 with letter of 21.07.2004						
2.	With lang	regard to the langua uage in which the inte	nge, all the elemernational applic	ments marked above were available or furnished to this Autho ication was filed, unless otherwise indicated under this item.	ority in the					
	The	These elements were available or furnished to this Authority in the following language: , which is:								
		hed for the purposes of the international search (under Rule 2	3.1(b)).							
		and the state of the standard and the standard Pulo 48 3/h)								
		the language of a train Rule 55.2 and/or 55.3	nslation furnish 3).	hed for the purposes of international preliminary examination	(under					
3.	mino acid sequence disclosed in the international application as carried out on the basis of the sequence listing:	n, the								
		contained in the international application in written form.								
		filed together with the international application in computer readable form.								
		furnished subsequently to this Authority in written form.								
		furnished subsequently to this Authority in computer readable form.								
		The statement that the subsequently furnished written sequence listing does not go beyond the disclos in the international application as filed has been furnished.								
		The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.								
4.	The	amendments have re	esulted in the ca	cancellation of:						
	×	the description,	pages:	23-25						
		the claims,	Nos.:							
		the drawings,	sheets:							
5.		This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).								
		(Any replacement sh	g such amendments must be referred to under item 1 and ann	exed to this						
6.	. Add	ditional observations,	if necessary:							

INTERNATIONAL PRELIMINARY **EXAMINATION REPORT**

International application No.

PCT/GB 03/03040

- V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- 1. Statement

Novelty (N)

Yes: Claims Claims

No:

No:

1-15

Inventive step (IS)

Yes: Claims

Claims

Industrial applicability (IA)

Yes: Claims

1-15

1-15

Claims No:

2. Citations and explanations

see separate sheet

1. The amended claims 1-15 fulfill the criteria set by article 34(2)b and is therefore accepted (old claim 7 and page 7 paragraph 1).

2. ITEM V

The following document is referred to:

CPA (closest prior art) EP-A-0583852

Both the application and CPA describe an ingestible composition containing polysaccharides, surfactant and colloidal silica.

The difference is, that in CPA there is no mentioning of ispaghula as the fiber. CPA produces a nutritious drink and current application produces a composition to alleviate constipation. Both CPA and current application are in a larger sense solving the same problem: dispersing composition to liquid. The difference is, that CPA has the problem of precipitation of gourd powder when put to water, but this is not really the problem addressed in CPA to choose correct ingredients. The main problem is to choose correct ingredients to achieve good taste. The problem of current application is to avoid to form a gel when put to water. A skilled person would not consider using ispaghula, because of the very well known gelling problem. Moreover, there is found a surprising effect to improve the wettability of ispaghula by using the special combination of colloidal silica with an ingestible surfactant. There is no document cited in the search report filed in time to suggest the use of above mentioned composition or to describe the surprising effect to ispaghula. Therefore a skilled person would not have a hint to use ispaghula in combination with colloidal silica and an ingestible surfactant to provide an easily dispersible composition.

Accordingly the amended claims 1-15 meet the requirements of Articles 33(2) and (3) PCT.

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Improvements In and Relating to Medicinal Compositions

The present invention relates to medicinal compositions comprising fibre bulking agents.

Ingestible fibre- compositions for the relief of gastric and digestive dysfunctions are known: Examples of such husk psyllium granular include compositions (ispaghula) intended to be stirred in measured amounts 10 into a volume of liquid, usually water or soft drinks. After stirring, the drinking composition is intended to be quickly imbibed due to the propensity of the ispaghula to absorb water readily and swell to form a viscous gel-like It is the property of water absorption which has saccharidefibre the desired characteristic of OL gastric containing ingestible compositions for digestive dysfunctions. Once the fibre or saccharidecontaining composition has absorbed water to produce the is relatively insoluble and gel-like mass, the mass fibrous, and is transported through the gut quickly with 20 minimal digestion, helping to alleviate constipation and other digestive dysfunctions.

Other forms, such as capsules forms for ingestion, are also available, such capsules being designed to be broken 25 down in the gut, wherein the released fibre or saccharide bulking agent absorbs water from the gut to form the viscous mass.

properties, beneficial ease-of-use However, for 30 particulate form is particularly advantageous to the end user, as this can be stirred into a volume of liquid, for a more pleasant taste, and the granular form of the fibre

absorbs water from the gut more quickly than a capsule form. However, there are a number of problems involved in using a granular form of the fibre-containing ingestible compositions.

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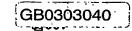
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Primarily, it is desirable for the ingestible compositions to disperse easily in liquid, for the user's convenience and/or so that the resultant drink is more palatable and/or easier to swallow. Any new composition must be as good as or, preferably, better than, existing compositions in this respect.

ingestible fibrehandling of some Secondly, the containing compositions is not straightforward. example in commercial production ispaghula is milled then and a granulating agent polyvinyl isopropyl alcohol These steps aid handling of the pyrollidone are added. compositions during manufacturing, before the isopropyl alcohol is removed prior to packaging the product for The granulation also aids the dispersion of the sale. ispaghula into a volume of liquid, prior to ingestion. However, the use of the granulating agent and isopropyl alcohol increases the cost of production and the use of the isopropyl alcohol is undesirable from an environmental and a health and safety perspective.

Thus, from the foregoing, it is apparent that there is a need for the provision of an ingestible composition which comprises a fibre bulking agent, in which the ingestible composition disperses easily in an aqueous liquid and/or is of improved manufacture.





It has now been determined that an ingestible composition bulking fibre husk psyllium comprising a in conjunction with (ispaghula), colloidal silica the in offer benefit can surfactant, ingestible ingestible composition, and can manufacture of the increase the rate at which the ingestible composition disperses in water or other ingestible liquid.

Therefore, according to the present invention there is provided an ingestible composition comprising ispaghula, colloidal silica and an ingestible surfactant wherein said composition is in a form so that in use it is dispersed in a liquid prior to ingestion.

silica ingestible both an presence of 15 significant, confer surfactant can ingestible the ternary example, For. benefits. synergistic, composition of the ispaghula has outstanding wettability properties, and is easy to manufacture, for example by simple blending. 20

Suitably the fibre bulking agent is a natural ingestible fibre (by which term we include herein fibre extracts). Plant-derived fibre bulking agents from psyllium husk fibre (ispaghula) are used.



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The ispaghula may comprise whole ispaghula seeds, but preferably at least part of the ispaghula comprises separated ispaghula seed husks. More preferably the ispaghula comprises at least 50% wt separated ispaghula husks, most preferably at least 95% wt separated ispaghula husks. Suitably the remainder of the ispaghula comprises other seed parts and/or other ispaghula plant materials. In preferred compositions the seed kernels themselves have been substantially removed to leave the husks.

Suitably the fibre bulking agent is present in the ingestible composition in an amount of at least 10wt%, preferably at least 30wt%, and most preferably at least 40wt% of the total weight of the ingestible composition.

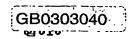
Suitably the fibre bulking agent is present in the ingestible composition in an amount up to 90wt%, preferably up to 80wt%, and most preferably up to 75wt% of the total weight of the ingestible composition.

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Suitably the colloidal silica is fumed or precipitated synthetic or natural silica. The silica may be amorphous or crystalline.

5 Suitably the mean particle size of the silica is at least 5nm, preferably at least 10nm.

Suitably the mean particle size of the silica is up to $5\mu m$, preferably up to $0.75\mu m$, more preferably up to $0.5\mu m$, and most preferably up to $0.2\mu m$.

One suitable silica material is Syloid 244 which is amorphous silica, has a mean particle size of about 3µm and is provided by W R Grace & Co. Another suitable silica materials is Silox 15, also from W R Grace & Co., and which has a mean particle size of about 4µm.

Another suitable silica material is Huber Zep 49 which is amorphous silica from J M Huber Corporation and contains about 1 wt% alumina.

Another suitable silica is Aerosil 200 from Degussa Company. It contains less than 0.05 wt% alumina and has a mean particle size of 12 nm.

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The silica is colloidal silica (silicon dioxide), and a preferred silica is a colloidal silica which is sold under the trade mark CAB-O-SIL, by Cabot Inc, USA.

Suitably the specific surface area of the silica is at least 50m² g⁻¹.

Suitably the specific surface area of the silica is up to $400m^2$ g⁻¹, preferably up to $300m^2$ g⁻¹ most preferably up to $200m^2$ g⁻¹.

Suitably the silica is present in the ingestible composition in an amount at least 0.01wt%, preferably at least 0.05wt%, more preferably at least 0.1wt% and most preferably at least 0.25wt%, of the total weight of the ingestible composition.

The upper limit of silica in the ingestible composition may be up to 11 wt%. Suitably the silica may be present in the ingestible composition in an amount up to 5wt%, preferably up to 2wt%, more preferably up to 1wt%, and most preferably up to 0.6wt%, of the total weight of the ingestible composition.

Preferably the ingestible surfactant is a polyethylene-, polypropylene-, or polyoxyethylene-based surfactant. Suitable polyethylene or polyoxyethylene-based surfactants include polyethylene glycols and polyoxyethylene sorbitan fatty acid esters (polysorbates).

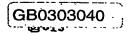
Suitable polyethylene glycols have a molecular weight of between 200 and 40,000, preferably between 200 and 1,000, and more preferably between 200 and 600. Suitable

5 Claims

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- 1. An ingestible composition comprising ispaghula, colloidal silica, and an ingestible surfactant wherein said composition is in a form so that in use it is dispersed in a liquid prior to ingestion.
- 2. An ingestible composition according to claim 1 wherein said composition in particulate or granular form.
- 15 3. An ingestible composition as claimed in any preceding claim wherein the particle size of the silica is between 5nm and $5\mu m$.
- 4. An ingestible composition as claimed in any preceding claim wherein the specific surface area of the silica is between 50 and 400gm⁻².
- 5. An ingestible composition as claimed in any preceding claim wherein the silica is present in an amount of between 0.01wtt and 5wtt of the total weight of the ingestible composition.
 - 6. An ingestible composition as claimed in any preceding claim, wherein the ingestible surfactant is a polyethylene-, polypropylene-, or polyoxyethylene-based surfactant.
 - 7. An ingestible composition as claimed in claim 11 wherein the polyethylene-based surfactant is a polyethylene glycol.





- 8. An ingestible composition as claimed in claim 12 wherein the polyethylene glycol has a molecular weight of between 200 and 40,000, preferably between 200 and 1,000.
- 9. An ingestible composition as claimed in claim 11 10 wherein the polyoxyethylene-based surfactant is a polyoxyethylene sorbitan fatty acid ester.
- 10. An ingestible composition as claimed in claim 11, wherein the surfactant is a polyoxyethylene monostearate or a glycerol polyethylene glycol oxystearate.
 - 11. An ingestible composition as claimed in any preceding claim wherein the ingestible surfactant is present in an amount of between 0.01wt% and 5wt% of the total weight of the ingestible composition.
- 12. An ingestible composition as claimed in claim 16 wherein the ingestible surfactant is polyethylene glycol and is present in an amount of between 0.1wt% and 2wt% of the total weight of the ingestible composition.
 - 13. An ingestible composition as claimed in claim 16 wherein the surfactant is a polyoxyethylene sorbitan fatty acid ester and is present in an amount of between 1wt% and 2wt% of the total weight of the ingestible composition.19.
 - 14. A method of making an ingestible composition comprising ispaghula, colloidal silica, and an ingestible surfactant, the method comprising the step of blending the ispaghula with the colloidal silica and the ingestible surfactant; preferably without the employment of isopropyl alcohol or more preferably of any solvent; and preferably

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without the employment of polyvinyl pyrollidone or more preferably of any granulating agent.

15. An ingestible composition or its manufacture substantially as described herein.

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